



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/604,926	08/27/2003	Itzhak Bentwich	06087.0200.CPUS07	1925
37808	7590	11/01/2006	EXAMINER	
ROSETTA-GENOMICS			ZARA, JANE J	
c/o PSWS			ART UNIT	
700 W. 47TH STREET			PAPER NUMBER	
SUITE 1000			1635	
KANSAS CITY, MO 64112			DATE MAILED: 11/01/2006	

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/604,926

Applicant(s)

BENTWICH, ITZHAK

Examiner

Jane Zara

Art Unit

1635

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply.

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 17-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 17-34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>10-6-06, 10-6-06</u> | 6) <input checked="" type="checkbox"/> Other: _____ |

DETAILED ACTION

This Office action is in response to the communication filed 9-14-06.

Claims 17-34 are pending in the instant application.

Election/Restrictions

Applicant's election with traverse of Group I, original claims 1-10, 13, 14 and 16, and SEQ ID No. 1931, in the reply filed on 9-14-06 is acknowledged. The traversal is on the ground(s) that normally ten sequences constitute a reasonable number for examination absent exceptional cases and the examiner has failed to demonstrate that the claimed sequences are an exceptional case necessitating the number to be selected be less than ten. This is not found persuasive because the searches required for proper examination of more than one sequence would unduly burden the examiner. The MPEP at 803.04 provided guidance for the number of sequences that would optionally be examined. These guidelines were written, however, before the vast expansion of the sequences in the various data bases that now must be searched, such expansion due in part to the large amount of data generated from the various genome projects. Furthermore, the searches of the appropriate data bases required for one sequence would not necessarily be coextensive with the searches required for other sequences, although some overlap might occur.

The requirement is still deemed proper and is therefore made FINAL.

Original claims 1-16 have been canceled and replaced with new claims 17-34, and claims pertaining to Groups II and III are withdrawn from further

Art Unit: 1635

consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected inventions, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement with respect to single sequence requirements in the reply filed on 9-14-06.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 17-34 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 17, line 5, and in claim 20, line 5, the term "at least 50/61" is vague and unclear. Appropriate clarification is required.

Claim 20 is not further limiting from claim 17, and claim 21 is not further limiting from claim 18, since both sets of claims encompass nucleic acids consisting of at least 18 nucleotides (e.g. of SEQ ID NO. 1931).

In claims 27 and 28, lines 1-2, the term "at least 15/19 complementary" is vague and unclear. Appropriate clarification is required.

In claims 33 and 34, line 1, the term "system" is vague and unclear. Appropriate clarification is required.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

Art Unit: 1635

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 17-34 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

No support has been found in the specification as originally filed for the ratio "50/61" recited in claims 17, 20, and for the ratio "15/19" recited in claims 27 and 28, nor has support been found for the size limitations of 18-120 nucleotides, or of 18-24 (e.g. as recited in claims 17, 19, 22 and 27). This is a new matter rejection. Applicant must point to support for these limitations in the original disclosure.

The claims are drawn to nucleic acids comprising SEQ ID No. 1931, SEQ ID No. 4539, and sequences that have approximately 80% identity with these SEQ ID Nos, or which polynucleotides share approximately 80% complementarity with a binding site of a target gene.

The specification and claims do not adequately describe the genus comprising polynucleotides with variable sequences (e.g. at least 80% identity) within SEQ ID Nos. 1931 or 4539, or which share 80% complementarity with a binding site of a target gene, or which are capable of modulating expression of any target gene. The claimed genus encompasses a broad array of nucleic acid molecules (thousands of sequences), and the disclosure fails to provide a

Art Unit: 1635

representative number of species for the broad genus and corresponding functions claimed, comprising variable sequences within 1931 or 4539, and capable of modulating expression of any target gene, or capable of binding an untranslated sequence of any target gene sharing at least 80% sequence identity.

The specification and claims do not adequately describe the concise structural features (e.g. the nucleotide sequences) that distinguish structures within each genus from those without. One of skill in the art would reasonably conclude that the disclosure fails to provide a representative number of species to describe the genus of molecules encompassed by the variable sequences claimed. Thus, one of skill in the art would reasonably conclude that Applicant was not in possession of this broadly claimed genus.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 17-34 are rejected under 35 U.S.C. 101 because the claimed invention lacks patentable utility.

The claims are drawn to probes, vectors and gene expression systems comprising polynucleotides between 18-120 nucleotides in length sharing at least 82% identity with SEQ ID No. 1931, or comprising at least 18 nucleotides of SEQ ID No. 4539.

Following the requirements of the Utility Guidelines (See Federal Register, Dec. 21, 1999, Vol. 64, No. 244, revised guidelines for Utility), the first inquiry is whether a credible utility is cited in the specification for use of the polynucleotides. The cited utilities in the specification are that the purportedly "novel" nucleic acids claimed are sequences that have not yet been found to exist in nature, but might exist, based on various assumptions and calculations made by Applicant. The specification describes (see e.g. figure 7) by schematic diagrams a "genomically programmed cell-specific protein expression modulation concept of the conceptual model of the present invention." At paragraphs 103-104 of the instant specification, the theory behind generating these heretofore unidentified sequences is described: "A centerpiece of the present invention is a bioinformatics gene detection engine 100, which is a preferred implementation of a mechanism capable of bioinformatically detecting genes of the novel groups of genes of the present invention. ...it receives three types of input, expressed RNA data 102, expressed DNA data 104, and protein function data 106, performs a complex process of analysis of this data as elaborated below, and based on this analysis produces output of a bioinformatically detected group of novel genes designated 108." The instant disclosure teaches an approach, therefore, of using computer calculations to predict the possibility of sequences that might exist, but which sequences have not been identified in any biological system. A credible utility is assessed from the standpoint of whether a person of ordinary skill in the art would accept that the recited or disclosed invention is currently available for such use. Since the

Art Unit: 1635

polynucleotides claimed are sequences derived from a conceptual model, and have not been identified in any biological systems, the credible utility appears to be lacking.

The next issue is whether there are any well established or substantial utilities for the claimed polynucleotides. The instant sequences are computer-generated sequences that purportedly function in the regulation of expression of some heretofore unidentified target gene in some heretofore unidentified biological context (see e.g. fig 5 which illustrates a "genomic records' concept of the conceptual model of the present invention, addressing the genomic differentiation enigma." See paragraph 0081 of the instant specification). No well established utilities for the claimed polynucleotides are identified in either the specification or in the prior art. The research contemplated by Applicant to characterize potential or purportedly naturally occurring polynucleotides that might act as intermediates in biological processes, does not constitute a specific and substantial utility. Identifying a possible polynucleotide sequence using computations or computer modeling does not define a "real world" context or use. Neither the specification as filed nor any art of record discloses or suggests any property or activity for the nucleic acid compounds such that another non-asserted utility would be well established for these purported polynucleotides. There is no showing in the specification or the art that the polynucleotides claimed exist in any biological context, nor any showing of target gene binding, modulation or regulation.

Art Unit: 1635

Claims 17-34 are also rejected under 35 U.S.C. 112, first paragraph. Specifically, since the claimed invention is not supported by either a credible, substantial or asserted utility or a well established utility for the reasons set forth above, one skilled in the art clearly would not know how to use the claimed invention.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 17, 20, 31 and 32 are rejected under 35 U.S.C. 102(b) as being anticipated by Lanfranchi et al.

Lanfranchi et al teach an isolated nucleic acid consisting of 18-120 nucleotides comprising (or consisting of) at least 18 consecutive nucleotides of SEQ ID NO. 1931, or the complement thereof (see Accession No. F24424 and the accompanying alignment data of Lanfranchi et al and SEQ ID No. 1931).

Claims 17, 20, 31 and 32 are rejected under 35 U.S.C. 102(b) as being anticipated by NCI, CGAP.

NCI, CGAP teach an isolated nucleic acid consisting of 18-120 nucleotides comprising (or consisting of) at least 18 consecutive nucleotides of

Art Unit: 1635

SEQ ID NO. 1931, or the complement thereof (see Accession No. AW009266 and the accompanying alignment data of NCI, CGAP and SEQ ID No. 1931).

Conclusion

Certain papers related to this application may be submitted to Art Unit 1635 by facsimile transmission. The faxing of such papers must conform with the notices published in the Official Gazette, 1156 OG 61 (November 16, 1993) and 1157 OG 94 (December 28, 1993) (see 37 C.F.R. ' 1.6(d)). The official fax telephone number for the Group is **571-273-8300**. NOTE: If Applicant does submit a paper by fax, the original signed copy should be retained by applicant or applicant's representative. NO DUPLICATE COPIES SHOULD BE SUBMITTED so as to avoid the processing of duplicate papers in the Office.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Jane Zara** whose telephone number is **(571) 272-0765**. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Paras, can be reached on (571) 272-4517. Any inquiry regarding this application should be directed to the patent analyst, Katrina Turner, whose telephone number is (571) 272-0564. Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0196.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information

Art Unit: 1635

for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jane Zara
10-25-06

J Zara
TC 1600
JANE ZARA, PH.D.
Patent Examiner

GenCore version 5.1.9
Copyright (c) 1993 - 2006 Bioacceleration Ltd.

OM nucleic - nucleic search, using sw model

Run on: October 14, 2006, 19:31:43 ; Search time 2388 Seconds

(without alignments)
1428.425 Million cell updates/sec

Title: US-10-604-926A-1931

Sequence: 1 agctgcctccctctctcc.....ggagagggggtcgtcgtc 61

Scoring table: IDENTITY_NUC

Search: 48236798 segs, 2795965780 residues

Total number of hits satisfying chosen parameters: 1484138

Minimum DB seq length: 0

Maximum DB seq length: 120

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database :

EST.*
1: gb_est1.*
2: gb_est3.*
3: gb_est4.*
4: gb_est5.*
5: gb_est6.*
6: gb_est7.*
7: gb_est8.*
8: gb_est9.*
9: gb_est10.*
10: gb_est11.*
11: gb_est12.*
12: gb_est13.*
13: gb_est14.*
14: gb_est15.*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	59	96.7	99	10	F24424 HSPD10720 H
2	43.4	71.1	83	7	AM009266 w80a06.x
3	27.6	45.2	77	9	DN374929 LIB38529
4	25.6	42.0	103	1	AA731471 n298f08.5
5	24.4	40.0	82	13	CM336527 104_835_1
6	24.4	40.0	84	13	CM335786 104_834_1
7	24.2	39.7	70	13	DU329889 109848604
8	23.6	38.7	69	13	CM130949 104_513_1
9	23.6	38.7	78	13	CM189398 104_610_1
10	23.6	38.7	78	13	CM189398 104_610_1
11	23.6	38.7	82	13	CM336527 104_835_1
12	23.4	38.4	91	11	BH415834 1007045K0
13	23.4	38.4	119	9	BP112776 BP112776
14	23.2	38.0	55	9	DN373872 LIB38528
15	23.2	38.0	68	14	CR147982 Forward s
16	23	37.7	115	1	AI858529 w139h03.x
17	23	37.7	120	7	BE082457 RCS-BT063
18	22.8	37.4	73	1	AI718969 aa50f01.x
19	22.8	37.4	98	5	CF197798 maj40b02.

20	22.8	37.4	111	13	CM189218
21	22.6	37.0	112	9	DN440660
22	22.6	37.0	114	2	BF832254 PM3-HT092
23	22.6	37.0	118	1	AI589396
24	22.4	36.7	99	10	F24424
25	22.4	36.7	117	12	CG566740
26	22.2	36.4	76	12	CG666867
27	22.2	36.4	98	13	CL279855
28	22.2	36.4	107	8	CO529989
29	22.2	36.4	113	7	AM028147
30	22.2	36.4	115	5	CD696564
31	22.2	36.4	119	1	AI824210
32	22.2	36.4	119	14	CR001418
33	22.2	36.1	70	14	DX107181
34	22.2	36.1	72	14	CR194047
35	22.2	36.1	72	14	CR037539
36	22.2	36.1	89	14	CR037539
37	22.2	36.1	94	8	CO887582
38	21.8	35.7	83	11	AZ639232
39	21.8	35.7	110	5	CT293381
40	21.8	35.7	117	7	BE487605
41	21.8	35.7	118	1	AA646954
42	21.6	35.4	120	5	CT297065
43	21.6	35.4	101	5	CD945340
44	21.6	35.4	101	8	CO824350
45	21.6	35.4	112	3	BU754334

ALIGNMENTS

RESULT 1
LOCUS F24424 99 bp mRNA linear EST 13-MAY-1999
DEFINITION HSPD10720 HM3 Homo sapiens cDNA clone s4000009E12, mRNA sequence.
ACCESSION F24424
VERSION F24424.1 GI:4810050

KEYWORDS
SOURCE
ORGANISM
EST.
Homo sapiens (human)
Homo sapiens

REFERENCE
AUTHORS
TITLE
JOURNAL
PUBMED
COMMENT
Contact: Valle G.
Cribi Biotechnology Centre
University of Padua
Via Trieste 75, 35121 Padua, Italy
Via Trieste 75, 35121 Padua, Italy
ABI Chromatograms and other information are available on WWW at
http://grip.bio.unipd.it.

REFERENCE
AUTHORS
TITLE
JOURNAL
PUBMED
COMMENT
Contact: Valle G.
Cribi Biotechnology Centre
University of Padua
Via Trieste 75, 35121 Padua, Italy
Via Trieste 75, 35121 Padua, Italy
ABI Chromatograms and other information are available on WWW at
http://grip.bio.unipd.it.

FEATURES

1..99
/organism="Homo sapiens"
/mol_type="mRNA"
/db_xref="taxon:9606"
/clone="s4000009E12"
/sex="female"
/tissue_type="pectoral muscle (after mastectomy)"
/clone_lib="HM3"
/note="Vector: pcDNA11 (Invitrogen); Site 1: BstXI;
Site 2: NotI; The library was constructed by G.
Lanfanchi. This library is not subtracted nor normalized.
The first strand cDNA was primed with a biotinylated
oligo-dT-NotI primer
(5'-biotin-AACCGGCTCGAGCGGCGCTTTTCTTTTCTTTT-3'). The
ds cDNA was sonicated and size-selected in the range

350-550 bp. The 3' specific fragments were selected by streptavidin coated magnetic beads, ligated to non-palindromic BstXI adapters, NotI digested and directionally cloned into BstXI-NotI cut pCDNA1 vector."

2

REFERENCE	AUTHORS	TITLE	JOURNAL	COMMENT
1 (pages 1 to 77)	Staten,N.R.	Direct Submission (Staten,N.R.)	Unpublished (2005)	Contact: Nick Staten Tel: 636 247 6855

Location/Qualifiers
1..77

```
/note="Vector: pSPORT1; Site_1: SalI; Site_2: NotI"
```

ility sequence stop: 82.
Location/Qualifiers

1

JOURNAL
COMMENT

CDNA Library Arranged by: Carl Fournier, Ph.D.,
 Disease Procurement: Louis M. Staudt, M.D., Ph.D., David Allman,
 Ph.D., Gerald Marti, M.D.
 CDNA Library Preparation: M. Bento Soares, Ph.D., M. Fatima
 Bonaldo, Ph.D.